

4.2 SAMPLE DESIGNATION

The site standard sample numbering system will be implemented in this project. A simple, unique, alphanumeric location code will be assigned to each sample while in the field. Prior to sample collection, each sample location will be established using tape and compass. Sample locations outside Building 123 will be marked with a reference flag or stake; locations on the building slab will be marked with fluorescent spray paint. Sample numbers (i.e., 98A000X.00X.00X) will be assigned to the project by the Analytical Services Division (ASD). In preparation of the final report, a matrix will be developed to correlate the individual sample numbers to location codes.

4.3 SAMPLE COLLECTION

Sample depths will be reached using a Geoprobe® truck-mounted hydraulic ram in accordance with Site Procedure 5-21000-ER-OPS-GT.39, *Push Subsurface Soil Sampling*. Soil cores will be recovered continuously in two-foot increments using a 1-inch diameter by 24-inch long stainless steel-lined California core barrel. Recovered soil will be placed into a stainless steel bucket until the desired depth is reached, at which time the soil will be composited by hand using a stainless steel trowel. However, VOC samples will be collected as grab samples and not composited. Cores will be monitored with a Flame Ionization Detector (FID) or a Photoionization Detector (PID) in accordance with Site Procedure 5-21000-OPS-FO.15, *Photoionization Detectors and Flame Ionization Detectors* for health and safety purposes.

Locations beneath the building slab will be sampled by coring through the slab with a hand-held, rotary-type concrete corer to access the underlying soils. The procedures used for coring are outlined in RF/RMRS-97-125.UN, *Concrete Sampling and Analysis Plan to Characterize the Building 123 Slab*. This procedure will be modified to describe sampling through the slab prior to sampling activities taking place. Resulting holes will be properly back-filled with granular bentonite.

A Radiological Control Technician (RCT) will scan each sample with a Field Instrument for the Detection of Low Energy Radiation (FIDLER). Equipment will also be monitored for radiological contamination during sampling activities. All sampling equipment will be decontaminated with analconox solution, and rinsed with deionized water, in accordance with Environmental Management Department (EMD) Operating Procedure 5-21000-OPS-FO.03, *General Equipment Decontamination, Section 5.3.1, Cleaning Steel or Metal Sampling Equipment Without Steam in the Field*. All other sampling equipment will include standard items such as chain of custody seals and forms, logbooks, etc. The cores will be visibly inspected for signs of contaminant staining, then visually logged by the field geologist as per Site Procedure 5-21000-ER-OPS-GT.01, *Logging Alluvial and Bedrock Material*. Additional samples will be collected if cores exhibit visible evidence (staining, odors, etc.) of contamination at shallower depths.

Three (3) field duplicates will be collected to represent at least 5% of the sample batch to provide adequate information on sample variability, as defined in *Guidance for Data Quality Objectives Process* (EPA 1994).

Sample points will be surveyed for location and elevation using Global Positioning System (GPS) equipment to ensure accuracy in data plotting.

Health and safety requirements will be specified in an addendum to the *Groundwater Monitoring Program, Health and Safety Plan* (RFP/ER-SAF-94-GMP) entitled Geoprobe Sampling and Well Installation for IHSS 121 and 148 at Building 123. Personal protective equipment (PPE) and air monitoring requirements, and hazard assessments not otherwise defined in the Building 123 PAM will be addressed in the addendum.

4.4 Sample Handling and Analysis

Samples will be handled according to *Environmental Management Department (EMD) Operating Procedures Volume/ Field Operations*, OPS-FO.13, *Containerization, Preserving, Handling, and Shipping of Soil and Water Samples, Volume 1*, and OPS-FO.10, *Receiving, Labeling, and Handling of Environmental Containers*.

Table 4-4 indicates analytical requirements. Samples will be submitted to an offsite, EPA-approved laboratory for analysis under a 30-day result turnaround time.